

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. \_\_\_\_\_  
FOR  
COUNTY OF LASSEN  
AND THE  
LASSEN REGIONAL SOLID WASTE MANAGEMENT AUTHORITY  
FOR  
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION MONITORING  
BIEBER CLASS III MUNICIPAL SOLID WASTE LANDFILL  
LASSEN COUNTY

The Dischargers' compliance with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements (WDR) Order No. \_\_\_\_\_.

**A. REQUIRED MONITORING REPORTS**

<u>Report</u>	<u>Frequency</u>
1. Groundwater Monitoring (Section D.1)	Quarterly
2. Annual Monitoring Summary Report (Section E.5.)	Annually
3. Leachate Seep Monitoring (Section D.2)	As necessary
4. Facility Monitoring (Section D.3)	Annually
5. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

**B. REPORTS**

The Dischargers shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in Order No. \_\_\_\_\_ and the Standard Provisions and Reporting Requirements. Reports that do not comply with the required format will be **REJECTED** and the Dischargers shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Dischargers shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly compliance with the waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer. Each monitoring report shall include a compliance evaluation summary as specified in

Reporting Requirements E.3, below.

Field and laboratory tests shall be reported in each monitoring report. Method detection limits shall be clearly identified for each constituent analyzed. Quarterly, semiannual, and annual monitoring reports shall be submitted to the Regional Water Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

<u>Sampling Frequency</u>	<u>Reporting Frequency</u>	<u>Reporting Periods End</u>	<u>Report Date Due</u>
Quarterly	Quarterly	31 March	<b>30 April</b>
		30 June	<b>31 July</b>
		30 September	<b>31 October</b>
		31 December	<b>31 January</b>
Semiannually	Semiannually	30 June	<b>31 July</b>
		31 December	<b>31 January</b>
Annually	Annually	31 December	<b>31 January</b>

**Constituents of Concern shall be monitored in accordance with the frequencies listed in Tables I and II.**

The Dischargers shall submit an **Annual Monitoring Summary Report** to the Board covering the previous monitoring year. The annual report shall contain the information specified in Reporting Requirements E.5, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall be reported to the Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

### **C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

The Dischargers shall submit an updated Water Quality Protection Standard Report in accordance with Corrective Action Monitoring Specification D.3 of WDR Order No. \_\_\_\_\_. For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard Report shall include, at a minimum, the following information:

## 1. **Water Quality Protection Standard**

The Water Quality Protection Standard, or any modification thereto, shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of groundwater** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the groundwater monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Dischargers may request modification of the Water Quality Protection Standard.

## 2. **Constituents of Concern**

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables I through III for the specified monitored medium. The Dischargers shall monitor all constituents of concern at the frequencies listed in Tables I and II.

### a. **Monitoring Parameters**

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through III for the specified monitored medium.

### **3. Concentration Limits**

For a naturally occurring constituent of concern, the concentration limit shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to §20415(e)(8) of Title 27; or
- b. By an alternate statistical method meeting the requirements of §20415(e)(8)(E) of Title 27.

For non-naturally occurring constituents of concern, the concentration limit shall be the lowest achievable analytical method detection limit for the respective constituent.

### **4. Point of Compliance**

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically down-gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. In this instance, due to site conditions, point of compliance shall be temporarily considered a plane defined by monitoring wells MW-1 and MW-2. However, should further information become available, for example geochemical analyses of on-site and surrounding monitoring wells, then this program may be subject to modification.

### **5. Compliance Period**

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Dischargers shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Dischargers initiate an evaluation monitoring program.

## **D. MONITORING**

The Dischargers shall comply with the WQPS and the corrective action monitoring program provisions of Title 27 for groundwater in accordance with Corrective Action Monitoring Specifications D.1 and D.5 of Waste Discharge Requirements Order No. \_\_\_\_\_. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that has been approved by the Executive Officer.

All point of compliance monitoring wells established for the groundwater monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard.

All groundwater monitoring wells shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I and III.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table III.

The Dischargers may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and only after receiving Executive Officer approval.

## **1. Groundwater**

The Dischargers shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of §20415 and §20430 of Title 27 and this Corrective Action Monitoring Program. The groundwater monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Dischargers shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Dischargers shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results quarterly, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually in the Annual Monitoring Summary Report.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Background wells should include, but are not limited to, appropriate off-site monitoring, industrial supply, and domestic wells. Further assessment of groundwater geochemistry in the vicinity of the landfill should assist with assignment of background versus compliance wells.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schoeller plot. Stable isotope data should also be graphically presented, for example as delta-oxygen 18 versus delta-deuterium relative to Vienna Standard Mean Ocean Water.

Monitoring wells at Bieber Landfill are on lateral spacings from about 700 to 900 feet. Nearby sites have relatively much closer spaced monitoring wells; the Big Valley Power plant, a permitted facility, and the Red Barn Bieber convenience store, an open underground storage tank case. These sites indicate laterally discontinuous permeability trends in both Quaternary and Tertiary intervals, and highly variable groundwater flows. Due to these variables, groundwater velocity and flow direction are currently indeterminate at Bieber Landfill. Assuming an inferred southwesterly regional groundwater flow direction, MW-1 and MW-2 at the south and southwest portion of the landfill are down-gradient of the Unit.

This Order requires further groundwater quality assessment, such as major ion and stable isotope geochemistry, to support these deductions. Stable isotope sampling shall occur quarterly for eight consecutive calendar quarters (see Table I), beginning first quarter 2008. Results of this sampling shall be reviewed to determine whether additional monitoring is necessary.

The existing groundwater monitoring system at Bieber Landfill consists of four monitoring wells. Wells MW-1 and MW-2 are located at the south and southwest portion of the landfill. Well MW-3 is located at the northwest corner of the facility and well MW-4 is located north of the MSW portion of the Unit. These four wells, and any other wells added as part of the detection and corrective action monitoring system, shall be monitored in accordance with the methods and frequencies listed in Tables I through III.

## **2. Leachate/Seep Monitoring**

The Bieber Landfill is unlined and has no leachate collection and removal system. Additionally, a final cover system has been constructed over the Unit. No leachate seeps have been observed since closure construction was completed in 2000.

However, any leachate that may seep to the surface of the Unit shall be sampled and analyzed for the monitoring parameters and constituents of concern listed in Table II upon detection. Furthermore, Regional Water Board staff shall be notified within 24 hours if any leachate is observed at the landfill. If a leachate seep develops, the quantity of leachate shall be *estimated* and reported as Leachate Flow Rate (in gallons/day). Also, refer to Section E.4 below.

### 3. Facility Monitoring

#### a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Dischargers shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section E.3 below. Any necessary construction, maintenance, or repairs shall be completed by **31 October annually**. The Dischargers shall include the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs, in each year's Fourth Quarter Groundwater Monitoring Report and Annual Monitoring Summary Report.

#### b. Storm Events

The Dischargers shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Major storm events are defined as 1.5 inches of precipitation within a 24 hour period. Necessary repairs shall be completed **within 30 days** of the inspection. The Dischargers shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

### E. REPORTING REQUIREMENTS

1. The Dischargers shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period.

Such legible records shall show the following for each sample:

- a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
  - e. Results of analyses, and the MDL and PQL for each analysis.
- 2. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.
- 3. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:
  - a. For each monitoring point addressed by the report, a description of:
    - 1) The time of water level measurement;
    - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
    - 3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;
    - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
    - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
  - b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
  - c. For each groundwater body, a description and graphical presentation of the groundwater flow direction under/around the Unit based upon stabilized static water level elevations, stratigraphic correlations, major ion and stable isotope geochemistry, and water quality data shall be included in the report.
  - d. Laboratory statements of results of all analyses evaluating compliance with requirements.



- e. An evaluation of the effectiveness of any run-off/run-on control facilities.
  - f. A summary and certification of completion of all **Standard Observations** for the Unit and the perimeter of the Unit. Standard observations for INACTIVE or CLOSED landfill units shall be conducted **monthly** during the wet season (1 October to 30 April), as required after major storm events (see Storm Events D.3.b above), and **quarterly** during the dry season (1 May to 30 September). The Standard Observations shall include:
    - 1) For the Unit:
      - a) Evidence of ponded water at any point on the facility (show affected area on map);
      - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
      - c) Evidence of erosion and/or of day-lighted refuse.
    - 2) Along the perimeter of the Unit:
      - a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);
      - b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and
      - c) Evidence of erosion and/or of day-lighted refuse.
4. The Dischargers shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Regional Water Board **within seven days**, containing at least the following information:
- a. A map showing the location(s) of seepage;
  - b. An estimate of the flow rate;
  - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
  - d. Verification that samples have been submitted for analyses of the monitoring parameters and constituents of concern listed in Table II of this MRP, and an estimated date that the results will be submitted to the Regional Water Board; and
  - e. Corrective measures underway or proposed, and corresponding time schedule.

5. The Dischargers shall submit an **Annual Monitoring Summary Report** to the Regional Water Board covering the reporting period of the previous monitoring year. This report shall contain:
- a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
  - b. All historical monitoring data, including data for the previous year, shall be submitted in tabular form as well as in a digital file format. The Regional Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Regional Water Board.
  - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Dischargers into full compliance with the waste discharge requirements.
  - d. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

The Dischargers shall implement the above monitoring program on the effective date of this Order.

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)

DPS: sae:

**TABLE I**  
**GROUNDWATER CORRECTIVE ACTION MONITORING PROGRAM**

<b>Field Parameters</b>	<u>Units</u>	<u>Frequency</u>
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Turbidity	Turbidity units	Quarterly
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Volatile Organic Compounds (USEPA Method 8260B, extended list – see Table III)	µg/L	Quarterly
δ <sup>18</sup> O	0/00	Quarterly
δ <sup>2</sup> H	0/00	Quarterly
Other stable isotopes	0/00	Quarterly, as recommended based on quarterly results of δ <sup>18</sup> O and δ <sup>2</sup> H after the first four sampling events. Isotope (δ <sup>18</sup> O, δ <sup>2</sup> H, and any others) sampling shall occur for eight consecutive calendar quarters, beginning with first quarter 2008.
<b>Constituents of Concern (see Table III)</b>		
Total Organic Carbon	mg/L	* Annually
Inorganics (dissolved – see Table III)	mg/L	* Annually
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	* 5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	* 5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	* 5 years

\*Annual and 5 Year COC samples shall be obtained during the second calendar quarter  
5 Year COC samples are due in 2008, and every 5-year period thereafter

**TABLE II**  
**LEACHATE SEEP MONITORING**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<b>Field Parameters</b>		
Total Flow	Gallons	Upon Detection
Flow Rate	Gallons/Day	Upon Detection
Electrical Conductivity	µmhos/cm	Upon Detection
pH	pH units	Upon Detection
<b>Monitoring Parameters</b>		
Total Dissolved Solids (TDS)	mg/L	Upon Detection
Chloride	mg/L	Upon Detection
Carbonate	mg/L	Upon Detection
Bicarbonate	mg/L	Upon Detection
Nitrate - Nitrogen	mg/L	Upon Detection
Sulfate	mg/L	Upon Detection
Calcium	mg/L	Upon Detection
Magnesium	mg/L	Upon Detection
Potassium	mg/L	Upon Detection
Sodium	mg/L	Upon Detection
Volatile Organic Compounds (USEPA Method 8260B, extended list – see Table III)	µg/L	Upon Detection
δ <sup>18</sup> O	0/00	Upon Detection
δ <sup>2</sup> H	0/00	Upon Detection
<b>Constituents of Concern (see Table III)</b>		
Total Organic Carbon	mg/L	Upon Detection
Inorganics (dissolved – see Table III)	mg/L	Upon Detection
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	Upon Detection
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	Upon Detection
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	Upon Detection

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Surrogates for Metallic Constituents**

pH  
Total Dissolved Solids  
Electrical Conductivity  
Chloride  
Sulfate  
Nitrate nitrogen

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010B
Sulfide	9030B

**Volatile Organic Compounds:**

**USEPA Method 8260**  
Acetone  
Acetonitrile (Methyl cyanide)  
Acrolein  
Acrylonitrile  
Allyl chloride (3-Chloropropene)

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

Benzene  
Bromochloromethane (Chlorobromomethane)  
Bromodichloromethane (Dibromochloromethane)  
Bromoform (Tribromomethane)  
Carbon disulfide  
Carbon tetrachloride  
Chlorobenzene  
Chloroethane (Ethyl chloride)  
Chloroform (Trichloromethane)  
Chloroprene  
Dibromochloromethane (Chlorodibromomethane)  
1,2-Dibromo-3-chloropropane (DBCP)  
1,2-Dibromoethane (Ethylene dibromide; EDB)  
o-Dichlorobenzene (1,2-Dichlorobenzene)  
m-Dichlorobenzene (1,3-Dichlorobenzene)  
p-Dichlorobenzene (1,4-Dichlorobenzene)  
trans- 1,4-Dichloro-2-butene  
Dichlorodifluoromethane (CFC 12)  
1,1 -Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
Ethyl methacrylate  
Hexachlorobutadiene  
Hexachloroethane  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Methacrylonitrile

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1 -Trichloroethane, Methylchloroform  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

**Semi-Volatile Organic Compounds:**

**USEPA Method 8270 - base, neutral, & acid extractables**

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

Benzo[a]pyrene  
Benzyl alcohol  
Bis(2-ethylhexyl) phthalate  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane  
p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene  
o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate  
p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimethylphenol (m-Xylenol)  
Dimethyl phthalate



**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorocyclopentadiene  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isodrin  
Isophorone  
Isosafrole  
Kepone  
Methapyrilene  
Methoxychlor  
3-Methylcholanthrene  
Methyl methanesulfonate  
2-Methylnaphthalene  
1,4-Naphthoquinone  
1-Naphthylamine  
2-Naphthylamine  
o-Nitroaniline (2-Nitroaniline)  
m-Nitroaniline (3-Nitroaniline)  
p-Nitroaniline (4-Nitroaniline)  
Nitrobenzene

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

o-Nitrophenol (2-Nitrophenol)  
p-Nitrophenol (4-Nitrophenol)  
N-Nitrosodi-n-butylamine (Di-n-butylNitrosamine)  
N-Nitrosodiethylamine (DiethylNitrosamine)  
N-Nitrosodimethylamine (DimethylNitrosamine)  
N-Nitrosodiphenylamine (DiphenylNitrosamine)  
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylNitrosamine)  
N-Nitrosomethylethylamine (MethylethylNitrosamine)  
N-Nitrosopiperidine  
N-Nitrosospyrrolidine  
5-Nitro-o-toluidine  
Pentachlorobenzene  
Pentachloronitrobenzene (PCNB)  
Pentachlorophenol  
Phenacetin  
Phenanthrene  
Phenol  
p-Phenylenediamine  
Polychlorinated biphenyls (PCBs; Aroclors)  
Pronamide  
Pyrene  
Safrole  
1,2,4,5-Tetrachlorobenzene  
2,3,4,6-Tetrachlorophenol  
o-Toluidine  
Toxaphene  
2,4,5-Trichlorophenol  
0,0,0-Triethyl phosphorothioate  
sym-Trinitrobenzene

**Chlorophenoxy Herbicides:**

**USEPA Method 8151A**

2,4-D (2,4-Dichlorophenoxyacetic acid)  
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)  
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)  
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

**TABLE III**  
**CONSTITUENTS OF CONCERN & MONITORING PARAMETERS**  
**APPROVED USEPA ANALYTICAL METHODS**

**Continued**

**Organophosphorus Compounds:**

**USEPA Method 8141A**

Atrazine  
Chlorpyrifos  
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Diazinon  
Dimethoate  
Disulfoton  
Ethion  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate  
Simazine

25 September 2007  
DPS: sae